

12-02-03

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Deposited on November 30, 2005

**PATENT**  
**Dkt. STL11874**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: **Stephen J. Sicola and Charles M. Sander**  
Assignee: **SEAGATE TECHNOLOGY LLC**  
Application No.: **10/817,617** Group No.: **2154**  
Filed: **April 2, 2004** Examiner: **Unknown**  
For: **MANAGED RELIABILITY STORAGE SYSTEM AND METHOD**

**Mail Stop Petition**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, VA 22313-1450**

**REQUEST FOR RECONSIDERATION OF PETITION TO MAKE SPECIAL FOR NEW  
APPLICATION UNDER M.P.E.P. § 708.02, VIII**

**1. Petition**

Applicant hereby requests reconsideration of the petition to make this new application, which has not received any examination by the Examiner, special. It is submitted that all of the elements set forth in M.P.E.P. § 708.02, VIII, allegedly deficient in the first petition, are provided in the attached Request for Reconsideration of Decision Dated September 30, 2005. As directed in the Decision on Petition, this request for reconsideration is being filed within two months of the mail date of the Decision, 30 September 2005. A copy of the Decision dated 9/30/05 is attached.

**2. Claims**

All the claims in this case are directed to a single invention. If the Office determines that all the claims presented are not obviously directed to a single invention, then applicant will make an election without traverse as a prerequisite to the grant of special status.

**3. Search**

A search has been made by attorney and professional searcher in the following:

Field of search:	Data Processing	Computers
	Class/Subclass	Class/Subclass
	705/009	710/006
	Memory	Errors
	Class/Subclass	Class/Subclasses
	711/118	714/020, 026 & 047

A copy of the search report from Mark Spector, professional searcher, was submitted with the original petition on August 22, 2005.

**4. Copy of references**

All of the references most closely related to the subject matter encompassed by the claims were listed in the Information Disclosure Statement which accompanied the original Petition, in accordance with M.P.E.P. 708.02VIII(D). The Information Disclosure Statement included Form PTO/SB/08A (substitute for PTO-1449) and copies of the references listed therein.

**5. Detailed discussion of the references**

There is submitted herewith a detailed discussion of Applicant's cited references, that are deemed most closely related to the subject matter encompassed by the claims. This discussion particularly points out how the claimed subject matter is distinguishable over the cited references. References that were included in the Information Disclosure Statement but not cited are either directed to the state of the art or are cumulative.

**6. Fee**

The fee required by 37 C.F.R. 1.17(h) \$130.00 was paid with the filing of the original petition to make special. Applicant does not believe that there are any fees due with this filing.

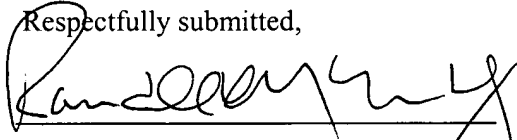
However, authorization is hereby made to charge our Deposit Account No. 06-0540, if a fee is in fact due at this time.

Charge any additional fees required by this paper or credit any overpayment in the manner authorized above. A duplicate of this paper is attached.

Date:

11/30/05

Respectfully submitted,



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*11-30-05 Request for Reconsideration*

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OKLAHOMA CITY, OK 73102-8820

**MAILED**

SEP 30 2005

Technology Center 2100

In re Application of: SICOLA, et al.  
Application No. 10/817,617  
Filed: April 2, 2004  
For: MANAGED RELIABILITY STORAGE  
SYSTEM AND METHOD

DECISION ON PETITION  
TO MAKE SPECIAL  
(ACCELERATED EXAMINATION)  
UNDER M.P.E.P. §708.02 (VIII)

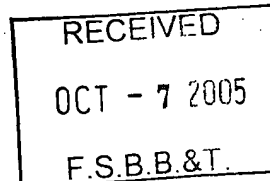
This is a response to the petition filed 22 August 2005 under 37 C.F.R. §1.102(d) and M.P.E.P. §708.02 (VIII): Accelerated Examination, to make the above-identified application special.

The Petition is **DISMISSED**.

M.P.E.P. §708.02, Section VIII which sets out the prerequisites for a grantable petition for Accelerated Examination under 37 C.F.R. §1.102(d) states in relevant part:

A new application (one which has not received any examination by the examiner) may be granted special status provided that applicant (and this term includes applicant's attorney or agent) complies with each of the following items:

- (a) Submits a petition to make special accompanied by the fee set forth in 37 CFR 1.17(h);
- (b) Presents all claims directed to a single invention, or if the Office determines that all the claims presented are not obviously directed to a single invention, will make an election without traverse as a prerequisite to the grant of special status;
- (c) Submits a statement(s) that a pre-examination search was made, listing the field of search by class and subclass, publication, Chemical Abstracts, foreign patents, etc. The pre-examination search must be directed to the invention as claimed in the application for which special status is requested. A search made by a foreign patent office satisfies this requirement;
- (d) Submits one copy each of the references deemed most closely related to the subject matter encompassed by the claims if said references are not already of record; and
- (e) Submits a detailed discussion of the references, which discussion points out, with the particularity required by 37 CFR 1.111 (b) and (c), how the claimed subject matter is patentable over the references.



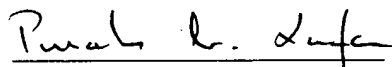
In those instances where the request for this special status does not meet all the prerequisites set forth above, **applicant will be notified and the defects in the request will be stated.** The application will remain in the status of a new application awaiting action in its regular turn. In those instances where a request is defective in one or more respects, applicant will be given one opportunity to perfect the request in a renewed petition to make special. If perfected, the request will then be granted. If not perfected in the first renewed petition, any additional renewed petitions to make special may or may not be considered at the discretion of the Technology Center (TC) Special Program Examiner.

The petition filed 22 August 2005 fails to adequately meet requirement (e) of the criteria set forth above. The petition essentially states that the entirety of each of claims 42, 55, and 69 is not taught by any of the references deemed most closely related. Such a statement is not a sufficient detailed description. Additionally, the discussion of the references is not sufficiently detailed. The description of each reference is only a few sentences long and gives only a cursory description.

Petition to Make Special **DISMISSED**.

Petitioner is given one opportunity to perfect the petition. Any request for reconsideration must be filed within TWO MONTHS of the mail date of this decision.

Until the renewed petition is submitted, the application will be returned to the examiner's docket to await treatment on the merits in the normal order of examination.



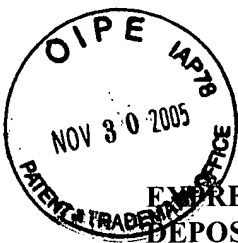
Pinchus M. Laufer

Special Program Examiner

Technology Center 2100

Computer Architecture, Software and Information Security

571-272-3599



EXPRESS MAIL RECEIPT NO. ED819051403US  
DEPOSITED ON NOVEMBER 30, 2005

**PATENT**  
**DKT. STL11874**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: **Stephen J. Sicola et al.**  
Assignee: **SEAGATE TECHNOLOGY LLC**  
Application No.: **10/817,617** Group No.: **2154**  
Filed: **April 2, 2004** Examiner: **Unknown**  
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**Mail Stop Petition**  
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**P. O. Box 1450**  
**Alexandria, VA 22313-1450**

**REQUEST FOR RECONSIDERATION OF DECISION ON  
PETITION MAILED SEPTEMBER 30, 2005**

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Sir:

The Applicant filed a Petition to Make Special under MPEP §708.02(VIII) ("Petition") on August 22, 2005, to request accelerated examination of the above identified case. A Decision on Petition was mailed by the Office on September 30, 2005, which dismissed the Petition.

The Applicant respectfully requests reconsideration and granting of the Petition, and provides the following remarks and supplemental statements in support thereof.

**Bases for Dismissal of Petition**

The Petition was dismissed on the basis that MPEP §708.02(VIII)(e) was not deemed satisfied. As stated by the Decision,

*"The petition essentially states that the entirety of each of claims 42, 55 and 69 is not taught by any of the references deemed most closely related. Such a statement is not a sufficient detailed description. Additionally, the discussion of the references is not sufficiently detailed. The description of each reference is only a few sentences long and gives only a cursory description." (Decision, page 2, second full paragraph, emphasis added)*

While the Applicant respectfully submits that the originally filed Petition met the requirements of §708.02(VIII), including section (e) thereof, the following supplemental information is provided in conjunction with this request for reconsideration.

### **Detailed Description**

In accordance with a Preliminary Amendment filed with the original Petition on August 22, 2005, the embodiments of the present invention as claimed can be at least characterized without limitation by the following recited features:

#### **Independent Claim 42**

*A method comprising steps of proactively monitoring for an occurrence of an event associated with operation of a distributed data storage system, characterizing the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, adjusting a parameter of the data storage system when the event is characterized as a usage event, and executing a diagnostic routine when the event is characterized as a non-usage event. (Claim 42, emphasis added)*

#### **Independent Claim 55**

*A distributed data storage system comprising at least one processor having associated programming to proactively monitor for an occurrence of an event associated with operation of said system, to characterize the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, to adjust a parameter of the data storage system when the event is characterized as a usage event, and to execute a diagnostic routine when the event is characterized as a non-usage event. (Claim 55, emphasis added)*

#### **Independent Claim 69**

*An apparatus comprising a distributed data storage system comprising a host system, a storage controller, a plurality of data storage devices, and first means for proactively monitoring for an occurrence of an event associated with operation of a distributed data storage system, for*

*characterizing the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, for adjusting a parameter of the data storage system when the event is characterized as a usage event, and for executing a diagnostic routine when the event is characterized as a non-usage event.* (Claim 69, emphasis added)

As noted in the originally filed Petition, the following references are deemed “most closely related” to the above claimed subject matter:

1. U.S. Patent No. 6,766,416 to Bachmat (“Bachmat ‘416”);
2. U.S. Patent No. 6,680,806 to Smith (“Smith ‘806”);
3. U.S. Patent No. 6,628,994 to Turicchi, Jr. et al. (“Turicchi ‘994”);
4. U.S. Patent No. 6,249,890 to Ukani et al. (“Ukani ‘890”);
5. U.S. Patent No. 6,018,432 to Ukani (“Ukani ‘432”); and
6. U.S. Published Patent Application No. US2005/0033625A1 to Kline (“Kline ‘625”).

A detailed discussion of the patentability of the claimed subject matter in view of each of these references will now be presented.

### **(1) Patentability of the Claims over Bachmat ‘416**

Bachmat ‘416 discloses a data processing system 30 for a disk array comprising disc drive data storage devices 31. See col. 3, lines 33-38 and FIG. 1. A load balancing routine 51 set forth by FIGS. 2A, 2B is executed to evenly balance activity among the respective storage devices 31. See Abstract; col. 5, lines 38-54.

The routine 51 receives performance data from a performance monitor 50 indicative of reading and writing operations to various logical volumes of the devices 31 (see e.g., step

60). A list of pairs of exchangeable logical volumes is derived (step 63), and accumulated usage statistics are obtained to produce read-miss, sequential-read and write-to-disc values for each logical volume (step 64). This allows an access activity table to be generated (step 65) indicative of the access activity for each logical volume. As necessary, a reconfiguration is carried out (steps 70 et seq.) to better balance the activity on a device 31 basis so that work load associated with a particular device receiving a large amount of activity is transferred to another device with a lower amount of activity. See e.g., col. 7, line 66 to col. 8, line 10.

The Applicant respectfully submits that Bachmat '416 at least fails to disclose steps of characterizing an event "as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, adjusting a parameter of the data storage system when the event is characterized as a usage event, and executing a diagnostic routine when the event is characterized as a non-usage event," as set forth by claim 42.

An anticipation rejection under 35 U.S.C. §102 requires that each and every limitation of a claim be set forth in a single prior art reference. See *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). However, Bachmat '416 is silent at least with regard to characterizing an event as a non-usage event, as well as silent with regard to executing a diagnostic routine in response thereto. Accordingly, a *prima facie* case of anticipation cannot be made under §102 for claim 42 in view of Bachmat '416.

The Applicant further respectfully submits that there is nothing in the art to make up for the above deficiency of Bachmat '416 with regard to establishing a *prima facie* case of obviousness under §103(a). There is nothing, either in Bachmat '416, the other art of record, or in the knowledge generally available to one of ordinary skill in the art, that would motivate one skilled in the art to modify the reference or to combine reference teachings to arrive at the subject matter of claim 42. Moreover, the prior art reference (or references when combined) must teach or suggest all the claim limitations, and the above limitation is not believed to be



taught by Bachmat '416 or other prior art. On these bases, the Applicant respectfully submits that the subject matter of claim 42 is patentable over Bachmat '416 in view of §103(a).

With regard to independent claim 55, the Applicant respectfully submits that Bachmat '416 fails to disclose a processor “having associated programming to proactively monitor for an occurrence of an event associated with operation of said system, to characterize the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, to adjust a parameter of the data storage system when the event is characterized as a usage event, and to execute a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 55.

As the Examiner will appreciate, this deficiency of Bachmat '416 means that claim 55 cannot be rejected under §102 as being anticipated by Bachmat '416.

Moreover, the Applicant respectfully submits that these limitations are not taught or suggested by Bachmat '416 or other prior art, and that there is no suggestion or motivation, either in Bachmat '416 or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to arrive at the subject matter of claim 55. On these bases, the Applicant respectfully submits that the subject matter of claim 55 is patentable over Bachmat '416 in view of §103(a).

With regard to independent claim 69, this claim is written in accordance with 35 U.S.C. §112, sixth paragraph as a combination claim that includes “first means for proactively monitoring for an occurrence of an event associated with operation of a distributed data storage system, for characterizing the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, for adjusting a parameter of the data storage system when the event is characterized as a usage event, and for executing a diagnostic routine when the event is characterized as a non-usage event.”

This means element is accordingly construed as the corresponding structure disclosed in the specification that carries out the recited function, and equivalents thereof. See *In re Donaldson Co. Inc.*, 29 USPQ2d 1845 (Fed. Cir. 1994)(*en banc*); MPEP §2181 *et seq.*

The corresponding structure disclosed in the specification that carries out the function of the means element at least includes programming utilized by the associated controllers adapted to carry out the routine 300 of FIG. 3. See e.g., FIGS. 2-3, and the specification at page 9, line 1 to page 12, line 24.

When properly construed, Bachmat '416 fails to disclose the above structure, and therefore cannot be viewed as anticipating claim 69 under §102. For example, as noted above Bachmat '416 fails at least to characterize an event as a non-usage event. Moreover, as before there is nothing in Bachmat '416 or other prior art to teach or suggest this limitation or to modify the reference or to combine reference teachings to arrive at the subject matter of claim 69. On these bases, the Applicant respectfully submits that the subject matter of claim 69 is patentable over Bachmat '416 in view of §103(a).

In view of the foregoing, the Applicant reasonably concludes that the subject matter of claims 42-70 defines subject matter that is patentable over Bachmat '416.

## **(2) Patentability of the Claims over Smith '806**

Smith '806 discloses a data storage system with disk drive 11, drive controller 19 and host controller 45. See e.g., FIG. 2. The drive controller 19 monitors a head-disk interface within the drive 11 for a degradation condition, and upon detection of the same implements one or more adjustments to prolong the onset of drive failure. See e.g., Abstract; col. 2, lines 16-18. These steps are carried out by the controller 19 in accordance with a routine 101 set forth by FIG. 3.

Such adjustments include increasing the internal pressure of the drive. Normally, the drive is operated at an atmospheric pressure at ambient or otherwise at a relatively low pressure. Col. 3, lines 19-20. However, pressure means 41 can be used as required to increase the density of the air inside the device. The pressure means can comprise a compressor, a vacuum pump, or a vessel of pressurized gas. A vent can also be used to permit the ingress of atmosphere to enter the device. Col. 3, lines 22-38.

An increase in internal pressure may delay the onset of a catastrophic failure of the head-disc interface (a “head crash”), since an adjustment in internal air pressure may alter the flying height of the head. Col. 3, lines 39-40. Other adjustments can include adjusting the rotational velocity of the disc so that the discs rotate at a velocity that is slower than a normal rate of rotation of the discs. Seek velocities can also be reduced so that the time required for actuator 21 to reach a target track is lengthened, albeit advantageously reducing flying height loss during the seek process. Col. 3, lines 40-48.

Another adjustment is an increase in allowed error retry attempt levels/numbers of attempts by data channel 43. Col. 3, lines 43-46. Each of these are attempted to extend the life of the device so that data can be removed prior to catastrophic failure. Col. 5, lines 8-19.

The Applicant respectfully submits that Smith ‘806 at least fails to disclose steps of characterizing an event “as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, adjusting a parameter of the data storage system when the event is characterized as a usage event, and executing a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 42.

Smith ‘806 is silent at least with regard to characterizing an event as a non-usage event, as well as silent with regard to executing a diagnostic routine in response thereto. Accordingly, a *prima facie* case of anticipation cannot be made under §102 for claim 42 in view of Smith ‘806.

The Applicant further respectfully submits that there is nothing in the art to make up for the above deficiency of Smith '806 with regard to establishing a *prima facie* case of obviousness under §103(a). There is nothing, either in Smith '806, the other art of record, or in the knowledge generally available to one of ordinary skill in the art, that would motivate one skilled in the art to modify the reference or to combine reference teachings to arrive at the subject matter of claim 42. An end-of-life extension routine as taught by Smith '806 adds nothing of any particular significance to the claimed combination. Moreover, the prior art reference (or references when combined) must teach or suggest all the claim limitations, and the above limitation is not believed to be taught by Smith '806 or other prior art. On these bases, the Applicant respectfully submits that the subject matter of claim 42 is patentable over Smith '806 in view of §103(a).

With regard to independent claim 55, the Applicant respectfully submits that Smith '806 fails to disclose a processor “having associated programming to proactively monitor for an occurrence of an event associated with operation of said system, to characterize the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, to adjust a parameter of the data storage system when the event is characterized as a usage event, and to execute a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 55.

As the Examiner will appreciate, this deficiency of Smith '806 means that claim 55 cannot be rejected under §102 as being anticipated by Smith '806.

Moreover, the Applicant respectfully submits that these limitations are not taught or suggested by Smith '806 or other prior art, and that there is no suggestion or motivation, either in Smith '806 or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to arrive at the subject matter of

claim 55. On these bases, the Applicant respectfully submits that the subject matter of claim 55 is patentable over Smith '806 in view of §103(a).

With regard to independent claim 69, as noted above this claim is written in accordance with 35 U.S.C. §112, sixth paragraph as a combination claim that includes “first means for proactively monitoring for an occurrence of an event associated with operation of a distributed data storage system, for characterizing the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, for adjusting a parameter of the data storage system when the event is characterized as a usage event, and for executing a diagnostic routine when the event is characterized as a non-usage event.”

When properly construed, Smith '806 fails to disclose the above structure of the recited “first means,” and therefore cannot be viewed as anticipating claim 69 under §102. For example, as noted above Smith '806 fails at least to characterize an event as a non-usage event. Moreover, as before there is nothing in Smith '806 or other prior art to teach or suggest this limitation or to modify the reference or to combine reference teachings to arrive at the subject matter of claim 69. On these bases, the Applicant respectfully submits that the subject matter of claim 69 is patentable over Smith '806 in view of §103(a).

In view of the foregoing, the Applicant reasonably concludes that the subject matter of claims 42-70 defines subject matter that is patentable over Smith '806.

### **(3) Patentability of the Claims over Turicchi '994**

Turicchi '994 discloses a method for use in a computer system whereby automatic and continual adjustments of computer system parameters are made in order to improve system performance. Col. 3, lines 1-9. The method is set forth by the flow of FIG. 2, and generally

involves the automatic selection of appropriate parametric values, including in relation to changes in system workload levels. See, e.g., FIG. 2, col. 3, line 43 to col. 4, line 9.

The parameters can be any parameters that are believed to influence system performance, such as size of swap space, memory dedicated to buffer-cache, maximum number of processes permitted, maximum application data size, etc. See col. 1, lines 15-21. The particular parameters selected for a given application will apparently vary, as indicated by the “generic” designation of such parameters in FIG. 1 of the reference.

In accordance with the methodology set forth by FIG. 2, the parameters are maintained in a list and each is initially assigned a status of “unelected.” See e.g., block 205. The parameters are selected in turn and incremented (blocks 220, 225), system performance is measured in relation to the incremented value of the parameter (block 260), and this process continues until a final value for the parameter is established (e.g., steps 250, 280) that is adjudged as providing “optimal” system performance. The Applicant notes that the entire detailed description section of the reference occupies less than two columns of text, so not much more can be said than that set forth above.

The Applicant respectfully submits that Turicchi ‘994 at least fails to disclose steps of characterizing an event “as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, adjusting a parameter of the data storage system when the event is characterized as a usage event, and executing a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 42.

Turicchi ‘994 is silent at least with regard to characterizing an event as a non-usage event, as well as silent with regard to executing a diagnostic routine in response thereto. Accordingly, a *prima facie* case of anticipation cannot be made under §102 for claim 42 in view of Turicchi ‘994.

The Applicant further respectfully submits that there is nothing in the art to make up for the above deficiency of Turicchi '994 with regard to establishing a *prima facie* case of obviousness under §103(a). There is nothing, either in Turicchi '994, the other art of record, or in the knowledge generally available to one of ordinary skill in the art, that would motivate one skilled in the art to modify the reference or to combine reference teachings to arrive at the subject matter of claim 42. A system performance optimization routine as taught by Turicchi '994 adds nothing of any particular significance to the claimed combination. Moreover, the prior art reference (or references when combined) must teach or suggest all the claim limitations, and the above limitation is not believed to be taught by Turicchi '994 or other prior art. On these bases, the Applicant respectfully submits that the subject matter of claim 42 is patentable over Turicchi '994 in view of §103(a).

With regard to independent claim 55, the Applicant respectfully submits that Turicchi '994 fails to disclose a processor “having associated programming to proactively monitor for an occurrence of an event associated with operation of said system, to characterize the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, to adjust a parameter of the data storage system when the event is characterized as a usage event, and to execute a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 55.

As the Examiner will appreciate, this deficiency of Turicchi '994 means that claim 55 cannot be rejected under §102 as being anticipated by Turicchi '994.

Moreover, the Applicant respectfully submits that these limitations are not taught or suggested by Turicchi '994 or other prior art, and that there is no suggestion or motivation, either in Turicchi '994 or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to arrive at the subject matter of

claim 55. On these bases, the Applicant respectfully submits that the subject matter of claim 55 is patentable over Turicchi '994 in view of §103(a).

With regard to independent claim 69, as noted above this claim is written in accordance with 35 U.S.C. §112, sixth paragraph as a combination claim that includes “first means for proactively monitoring for an occurrence of an event associated with operation of a distributed data storage system, for characterizing the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, for adjusting a parameter of the data storage system when the event is characterized as a usage event, and for executing a diagnostic routine when the event is characterized as a non-usage event.”

When properly construed, Turicchi '994 fails to disclose the above structure of the recited “first means,” and therefore cannot be viewed as anticipating claim 69 under §102. For example, as noted above Turicchi '994 fails at least to characterize an event as a non-usage event. Moreover, as before there is nothing in Turicchi '994 or other prior art to teach or suggest this limitation or to modify the reference or to combine reference teachings to arrive at the subject matter of claim 69. On these bases, the Applicant respectfully submits that the subject matter of claim 69 is patentable over Turicchi '994 in view of §103(a).

In view of the foregoing, the Applicant reasonably concludes that the subject matter of claims 42-70 defines subject matter that is patentable over Turicchi '994.

#### **(4) Patentability of the Claims over Ukani '890**

Ukani '890 is generally directed to detecting head readback response degradation in a data storage device. The exemplary device 100 is disclosed as having a data transducing head 120 controllably positionable adjacent a storage medium 106. See FIG. 1, col. 5, lines 15-43.



The head 120 is preferably characterized as comprising a magneto-resistive (MR) type read element. Col. 6, lines 23-27.

A processor 132 provides top level control for the device 100 in accordance with programming and parameter values stored in DRAM 134 and non-volatile flash memory 136. See FIG. 2; col. 5, lines 51-59.

During operation, the processor 132 operates in accordance with a head failure prediction routine 280 of FIG. 9 to store a baseline level for a selected readback response characteristic of the head. The readback response characteristic can vary depending on the application and can exemplarily include electrical resistance (see e.g., FIG. 10 and col. 10, line 40 et seq.), readback signal amplitude (see e.g., FIG. 13 and col. 13, line 57 et seq.), asymmetry (see e.g., FIGS. 15-16 and col. 15, line 46 et seq.), nonlinearity (see e.g., FIGS. 17, 20 and col. 16, line 12 et seq.), etc. This operation is set forth by step 282 in FIG. 9 and is discussed at col. 9, lines 60-65.

As those skilled in the art will appreciate, electrical resistance is the steady-state electrical resistance characteristics of the MR element. Readback signal amplitude relates to the amplitude of readback signals obtained from the head. Asymmetry relates to differences in the absolute magnitudes of positive and negative readback pulses. Nonlinearity relates to changes in gain response at different points across the head width.

Thereafter, the processor 132 periodically determines a subsequent level for the readback response characteristic and predicts the possibility of a future failure of the device in relation to a change in the subsequent level as compared to the baseline level. See e.g., steps 284, 286 and 288 of FIG. 9; col. 9, line 66 to col. 10, line 32. The processor further takes appropriate corrective actions as required in relation to the determined possibility of future failure.

The Applicant respectfully submits that Ukani '890 at least fails to disclose steps of characterizing an event "as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, adjusting a parameter of the data storage system when the event is characterized as a usage event, and executing a diagnostic routine when the event is characterized as a non-usage event," as set forth by claim 42.

Ukani '890 is silent at least with regard to characterizing an event as a non-usage event, as well as silent with regard to executing a diagnostic routine in response thereto. Accordingly, a *prima facie* case of anticipation cannot be made under §102 for claim 42 in view of Ukani '890.

The Applicant further respectfully submits that there is nothing in the art to make up for the above deficiency of Ukani '890 with regard to establishing a *prima facie* case of obviousness under §103(a). There is nothing, either in Ukani '890, the other art of record, or in the knowledge generally available to one of ordinary skill in the art, that would motivate one skilled in the art to modify the reference or to combine reference teachings to arrive at the subject matter of claim 42. A head reliability prediction routine based on operational parametric characteristics as taught by Ukani '890 adds nothing of any particular significance to the claimed combination. Moreover, the prior art reference (or references when combined) must teach or suggest all the claim limitations, and the above limitation is not believed to be taught by Ukani '890 or other prior art. On these bases, the Applicant respectfully submits that the subject matter of claim 42 is patentable over Ukani '890 in view of §103(a).

With regard to independent claim 55, the Applicant respectfully submits that Ukani '890 fails to disclose a processor "having associated programming to proactively monitor for an occurrence of an event associated with operation of said system, to characterize the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, to adjust a parameter of the data storage system when the event is

characterized as a usage event, and to execute a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 55.

As the Examiner will appreciate, this deficiency of Ukani ‘890 means that claim 55 cannot be rejected under §102 as being anticipated by Ukani ‘890.

Moreover, the Applicant respectfully submits that these limitations are not taught or suggested by Ukani ‘890 or other prior art, and that there is no suggestion or motivation, either in Ukani ‘890 or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to arrive at the subject matter of claim 55. On these bases, the Applicant respectfully submits that the subject matter of claim 55 is patentable over Ukani ‘890 in view of §103(a).

With regard to independent claim 69, as noted above this claim is written in accordance with 35 U.S.C. §112, sixth paragraph as a combination claim that includes “first means for proactively monitoring for an occurrence of an event associated with operation of a distributed data storage system, for characterizing the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, for adjusting a parameter of the data storage system when the event is characterized as a usage event, and for executing a diagnostic routine when the event is characterized as a non-usage event.”

When properly construed, Ukani ‘890 fails to disclose the above structure of the recited “first means,” and therefore cannot be viewed as anticipating claim 69 under §102. For example, as noted above Ukani ‘890 fails at least to characterize an event as a non-usage event. Moreover, as before there is nothing in Ukani ‘890 or other prior art to teach or suggest this limitation or to modify the reference or to combine reference teachings to arrive at the subject matter of claim 69. On these bases, the Applicant respectfully submits that the subject matter of claim 69 is patentable over Ukani ‘890 in view of §103(a).

In view of the foregoing, the Applicant reasonably concludes that the subject matter of claims 42-70 defines subject matter that is patentable over Ukani '890.

#### **(5) Patentability of the Claims over Ukani '432**

Ukani '432 is generally directed to improving operational response of a data storage device 100 during idle modes. An idle mode is a mode of operation during which the device is idle; that is, not currently servicing host access commands. Ukani '432 sets forth an idle mode compensation routine whereby, once an idle mode is detected, various parametric adjustments are made in the background to improve operational efficiency of the device. See col. 2, lines 28-44; FIG. 6.

The device 100 includes an actuator 110 that supports one or more data transducing heads 118 adjacent data storage surfaces of a corresponding array of media 108. A closed loop servo circuit 144 provides positional control for the transducers 118 (FIG. 3), read/write channel circuitry 146 provides data transfer (read and write) operations with the media (FIG. 4). A top level processor 150 provides top level control for the device. See e.g., FIG. 2 and col. 4, lines 6-16.

The processor 150 utilizes the routine of FIG. 6 and detects an idle condition at step 232, in relation to passage of a selected amount of time since the most recent host access command. Col. 7, lines 27-42. Once an idle condition is detected, the processor proceeds to execute a number of parametric adjustment routines set forth by a compensation table. FIG. 5; step 236 of FIG. 6; col. 8, lines 1-17.

These routines are described as a servo gain calibration routine during which a servo gain is calibrated (col. 6, lines 56-60); a repeatable run out compensation routine which compensates for RRO components in a position error signal (PES) at a frequency associated with the rate of disc rotation (col. 6, lines 60-63); a VCM torque compensation routine in

which variations in torque characteristics of a voice coil motor 124 used to rotate the actuator is adjusted (col. 6, lines 63-67); a bias force compensation routine which evaluates the bias forces acting upon the actuator (col. 6, line 67 to col. 7, line 3); and an adapt read channel routine whereby various channel parameters are adjusted to optimize performance (col. 7, lines 6-9).

Ukani '432 preferably proceeds through the optimization routines of the table and reorders the routines so that, next time through the process, the routines are performed in a different order. See step 238, FIG. 6 and col. 8, lines 1-10. After each pass through the routine, if the device 100 is still idle, the routine of FIG. 6 proceeds to a dither operation (step 240) where the heads are periodically moved to different locations across the media.

The Applicant respectfully submits that Ukani '432 at least fails to disclose steps of characterizing an event "as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, adjusting a parameter of the data storage system when the event is characterized as a usage event, and executing a diagnostic routine when the event is characterized as a non-usage event," as set forth by claim 42.

While Ukani '432 does identify an idle mode, this fails to disclose explicitly or inherently an operation to characterize a particular event as a usage event or a non-usage event, as claimed, and then to adjust a parameter if the event is a usage event and to execute a diagnostic routine if the event is a non-usage event. Accordingly, a *prima facie* case of anticipation cannot be made under §102 for claim 42 in view of Ukani '432.

The Applicant further respectfully submits that there is nothing in the art to make up for the above deficiency of Ukani '432 with regard to establishing a *prima facie* case of obviousness under §103(a). There is nothing, either in Ukani '432, the other art of record, or in the knowledge generally available to one of ordinary skill in the art, that would motivate one skilled in the art to modify the reference or to combine reference teachings to arrive at the

subject matter of claim 42. An optimization routine carried out during idle periods as taught by Ukani '432 adds nothing of any particular significance to the claimed combination. Moreover, the prior art reference (or references when combined) must teach or suggest all the claim limitations, and the above limitation is not believed to be taught by Ukani '432 or other prior art. On these bases, the Applicant respectfully submits that the subject matter of claim 42 is patentable over Ukani '432 in view of §103(a).

With regard to independent claim 55, the Applicant respectfully submits that Ukani '432 fails to disclose a processor “having associated programming to proactively monitor for an occurrence of an event associated with operation of said system, to characterize the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, to adjust a parameter of the data storage system when the event is characterized as a usage event, and to execute a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 55.

As the Examiner will appreciate, this deficiency of Ukani '432 means that claim 55 cannot be rejected under §102 as being anticipated by Ukani '432.

Moreover, the Applicant respectfully submits that these limitations are not taught or suggested by Ukani '432 or other prior art, and that there is no suggestion or motivation, either in Ukani '432 or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to arrive at the subject matter of claim 55. On these bases, the Applicant respectfully submits that the subject matter of claim 55 is patentable over Ukani '432 in view of §103(a).

With regard to independent claim 69, as noted above this claim is written in accordance with 35 U.S.C. §112, sixth paragraph as a combination claim that includes “first means for proactively monitoring for an occurrence of an event associated with operation of a distributed data storage system, for characterizing the event as a usage event related to a usage

rate of said system or a non-usage event not related to a usage rate of said system, for adjusting a parameter of the data storage system when the event is characterized as a usage event, and for executing a diagnostic routine when the event is characterized as a non-usage event.”

When properly construed, Ukani ‘432 fails to disclose the above structure of the recited “first means,” and therefore cannot be viewed as anticipating claim 69 under §102. For example, as noted above Ukani ‘432 fails at least to characterize an event as a non-usage event. Moreover, as before there is nothing in Ukani ‘432 or other prior art to teach or suggest this limitation or to modify the reference or to combine reference teachings to arrive at the subject matter of claim 69. On these bases, the Applicant respectfully submits that the subject matter of claim 69 is patentable over Ukani ‘432 in view of §103(a).

In view of the foregoing, the Applicant reasonably concludes that the subject matter of claims 42-70 defines subject matter that is patentable over Ukani ‘432.

#### **(6) Patentability of the Claims over Kline ‘625**

Kline ‘625 is a published patent application generally directed to a method and apparatus for scheduling the performance of maintenance operations in a system environment.

A distributed computing environment 100 is set forth by FIG. 1, and this environment includes multiple computing domains 110-114 each having a server 120 and a client 122. (Para. 0026). A middleware layer infrastructure 200 is provided to set forth an independent infrastructure layer that sits between applications 212, networks 214, databases 216, and distributed services communication mechanisms 218. Kline ‘625 describes the middleware layer infrastructure as facilitating management of the environment 100 and reducing costs and complexity of implementing changes in infrastructure services. (Para 0027).

A system 300 monitors parameters of the system with a view toward detecting the need to perform maintenance tasks. (Para 0029). The system 300 is set forth by FIG. 3 and includes controller 310, memory 312, operating system 314 and applications 320. A scheduling tool 350 operates to schedule maintenance tasks via maintenance tools 352. Paras. 0029 and 0030). The maintenance tools are exemplified in FIG. 4, and the operation of the scheduling tool 350 is set forth by FIGS. 5 and 6.

In FIG. 5, the tool 350 determines the operating system type and tailors execution of the specified environment. Application instances are retrieved, and errors are logged for subsequent review. Para. 0040 and steps 510, 512, 514, 520, 532 and 542 of FIG. 5.

In FIG. 6, maintenance and recovery operations are carried out in response to block 514 of FIG. 5. A transaction log type is determined at step 612, application version and status is determined at step 614, and a determination is made whether the instance is running (step 620) and whether the log type is linear or circular (steps 630, 640). If the instance is not running and the system is circular (steps 622, 632), the archived configuration and authorization files are cleaned (step 680) and the system returns (step 690). See paras. 0041-0045.

FIG. 7 shows dynamic execution of a maintenance utility performed in conjunction with the foregoing routines. A schedule is determined, such as every 30 minutes (step 710) to determine whether the wrapper that manages execution of the maintenance tools is running. A determination is then made whether to proceed with execution (steps 720, 722) or if a delay should be invoked (step 740). Para. 0046. In this way, maintenance tasks are performed either when the monitoring detects the need to perform the task, or within a predetermined time period.

The Applicant respectfully submits that Kline '625 at least fails to disclose steps of characterizing an event "as a usage event related to a usage rate of said system or a non-usage



event not related to a usage rate of said system, adjusting a parameter of the data storage system when the event is characterized as a usage event, and executing a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 42.

While Kline ‘625 does identify an idle mode, this fails to disclose explicitly or inherently an operation to characterize a particular event as a usage event or a non-usage event, as claimed, and then to adjust a parameter if the event is a usage event and to execute a diagnostic routine if the event is a non-usage event. Accordingly, a *prima facie* case of anticipation cannot be made under §102 for claim 42 in view of Kline ‘625.

The Applicant further respectfully submits that there is nothing in the art to make up for the above deficiency of Kline ‘625 with regard to establishing a *prima facie* case of obviousness under §103(a). There is nothing, either in Kline ‘625, the other art of record, or in the knowledge generally available to one of ordinary skill in the art, that would motivate one skilled in the art to modify the reference or to combine reference teachings to arrive at the subject matter of claim 42. The routine taught by Kline ‘625 adds nothing of any particular significance to the claimed combination. Moreover, the prior art reference (or references when combined) must teach or suggest all the claim limitations, and the above limitation is not believed to be taught by Kline ‘625 or other prior art. On these bases, the Applicant respectfully submits that the subject matter of claim 42 is patentable over Kline ‘625 in view of §103(a).

With regard to independent claim 55, the Applicant respectfully submits that Kline ‘625 fails to disclose a processor “having associated programming to proactively monitor for an occurrence of an event associated with operation of said system, to characterize the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, to adjust a parameter of the data storage system when the event is

characterized as a usage event, and to execute a diagnostic routine when the event is characterized as a non-usage event,” as set forth by claim 55.

As the Examiner will appreciate, this deficiency of Kline ‘625 means that claim 55 cannot be rejected under §102 as being anticipated by Kline ‘625.

Moreover, the Applicant respectfully submits that these limitations are not taught or suggested by Kline ‘625 or other prior art, and that there is no suggestion or motivation, either in Kline ‘625 or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to arrive at the subject matter of claim 55. On these bases, the Applicant respectfully submits that the subject matter of claim 55 is patentable over Kline ‘625 in view of §103(a).

With regard to independent claim 69, as noted above this claim is written in accordance with 35 U.S.C. §112, sixth paragraph as a combination claim that includes “first means for proactively monitoring for an occurrence of an event associated with operation of a distributed data storage system, for characterizing the event as a usage event related to a usage rate of said system or a non-usage event not related to a usage rate of said system, for adjusting a parameter of the data storage system when the event is characterized as a usage event, and for executing a diagnostic routine when the event is characterized as a non-usage event.”

When properly construed, Kline ‘625 fails to disclose the above structure of the recited “first means,” and therefore cannot be viewed as anticipating claim 69 under §102. For example, as noted above Kline ‘625 fails at least to characterize an event as a non-usage event. Moreover, as before there is nothing in Kline ‘625 or other prior art to teach or suggest this limitation or to modify the reference or to combine reference teachings to arrive at the subject matter of claim 69. On these bases, the Applicant respectfully submits that the subject matter of claim 69 is patentable over Kline ‘625 in view of §103(a).

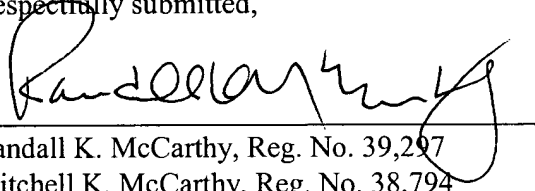
In view of the foregoing, the Applicant reasonably concludes that the subject matter of claims 42-70 defines subject matter that is patentable over Kline '625.

**Conclusion**

The Applicant respectfully submits that all of the requirements of MPEP §708.02(VIII) have been satisfied, and therefore requests reconsideration and withdrawal of the dismissal of the Applicant's Petition to Make Special.

Should any questions arise concerning this Request for Reconsideration, the Examiner is invited to contact the below-signed attorney.

Date: 11/30/05

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